

August 1, 2005

Mr. Steve Trent Fluor Hanford Inc. 825 Jadwin Avenue Richland, WA 99352

Reference:

P.O. #630

Eberline Services R5-06-073-7276, SDG H3200

Dear Mr. Trent:

Enclosed is the data report for one water sample designated under SAF No. F05-024 received at Eberline Services on June 8, 2005. The sample was analyzed according to the accompanying chain-of-custody document.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion

Senior Program Manager

Melissa Marm

MCM/

Enclosure: Data Package

Analytical Services 2030 Wright Avenue P.O. Box 4040 Richmond, California 94804-0040 (510) 235-2633 Fax (510) 235-0438 Toll Free (800) 841-5487 www.eberiineservices.com

Case Narrative

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1.0 GENERAL

Fluor Hanford Inc. (FH) Sample Delivery Group H3200 was composed of one water sample designated under SAF No. F05-024 with a Project Designation of. 216-A-8 Crib Characterization Boreholes – QC Samples.

The sample was received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist.

2.0 ANALYSIS NOTES

2.1 Tritium Analyses

The LCS and blank <u>were</u> scaled to the nominal aliquot of 0.01 Liter. No problems were encountered during the course of the analyses.

2.2 Carbon-14 Analyses

No problems were encountered during the course of the analyses.

2.3 lodine-129 Analyses

No problems were encountered during the course of the analyses.

2.4 Gamma Spectroscopy

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Melissa C. Mannion

Senior Program Manager

Date

EBERLINE SERVICES / RICHMOND SAMPLE DELIVERY GROUP H3200

SDG 7276 Contact Melissa C. Mannion

Client <u>Hanford</u> Contract No. 630 Case no SDG H3200

SUMMARY DATA SECTION

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Prepared by

Reviewed by

Meh Mas

Lab id EBRLNE Protocol <u>Hanford</u> Version <u>Ver 1.0</u>

Form DVD-TOC Version 3.06
Report date 08/01/05

SAMPLE DELIVERY GROUP H3200

SDG <u>7276</u>
Contact <u>Melissa C. Mannion</u>

REPORT GUIDE

Client	Hanford
Contract	No. 630
Case no	SDG_H3200

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

REPORT GUIDES
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SDG 7276
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H3200

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

REPORT GUIDES

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SUMMARY DATA SECTION

Page 2

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
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SAMPLE DELIVERY GROUP H3200

SDG	7276		
Contact	<u>Melissa</u>	Ç,	Mannion

SAMPLE SUMMARY

Client	Hanford
Contract	No. 630
Case no	SDG H3200

CLIERT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B1D7F2	216-A-8	WATER		R506073-01	F05-024	F05-024-010	06/07/05 07:35
Method Blank		WATER		R506073-03	F05-024		
Method Blank		WATER		R506073-07	F05-024		
Lab Control Sample		WATER		R506073-02	F05-024		
Lab Control Sample		WATER		R506073-06	F05-024		
Duplicate (R506973-01)	216-A-8	WATER		R506073-04	F05-024		06/07/05 07:35
Duplicate (R506073-01)	216-A-8	WATER		R506073-08	F05-024		06/07/05 07:35
Spike (R506073-01)	216-A-8	WATER		R506073-05	F05-024		06/07/05 07:35

SAMPLE SUMMARY

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Lab id EBRINE
Protocol Hanford
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SDG	7276		
Contact	Melissa	c.	Mannion

SAMPLE DELIVERY GROUP H3200

QC SUMMARY

Client	Hanford
Contract	No. 630
Case no	SDG H3200

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	\$ SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS S		LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7276	F05-024-010	BlD7F2	WATER		5.0 L		06/08/05	1	R506073-01	7276-001
		Method Blank	WATER				 -	_	R506073-03	7276-003
		Method Blank	WATER						R506073-07	7276-007
		Lab Control Sample	WATER						R506073-02	7276-002
		Lab Control Sample	WATER						R506073-06	7276-006
		Duplicate (R506073-01)	WATER		5.0 L		06/08/05	1	R506073-04	7276-004
		Duplicate (R506073-01)	WATER		5.0 L		06/08/05	1	R506073-08	7276-008
		Spike (R506073-01)	WATER		5.0 L		06/08/05	1	R506073-05	7276-005

QC SUMMARY

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SUMMARY DATA SECTION

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SAMPLE DELIVERY GROUP H3200

SDG	7276		
Contact	<u>Melissa</u>	<u>c.</u>	Mannion

PREP BATCH SUMMARY

Client	Hanford
Contract	No. 630
Case no	SDG H3200

TEST	MATRIX	METHOD	PREPARATION BATCH		CLIENT	MORE	nchets :		DUP/ORIG	MS/ORIG	QUALI- PTERS
	Scan						 		<u> </u>		
GAM	WATER	Gamma Emitters	7132-162	15.0	1		 1	1	1/1		
Gamma	Spectro	scopy									
<u> </u>	WATER	Todine 129 in Water	7132-162	5.0	1		1	1	1/1	<u>. </u>	
Liqui	d Scinti	llation Counting									
с 	WATER	Carbon 14 in Water	7132-162	10.0	1		1	1	1/1	1/1	х
н	WATER	Tritium in Water	7132-162	10.0	1		 1	1	1/1	1/1	x

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.

Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

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SAMPLE DELIVERY GROUP H3200

SDG	<u>7</u> 276		
Contact'	<u>Melissa</u>	Ç.	Mannion

WORK SUMMARY

Client <u>Hanford</u>
Contract <u>No. 630</u>
Case no <u>SDG H3200</u>

CLIENT SAMPLE : LOCATION CUSTODY	ID SAF No	MATRIX	LAE SAMPLE II COLLECTED RECEIVED	PLANCHET	T r st	SUF-	ANALYZED	REVIEWED	вұ	METHOD
BlD7F2			R506073-01	7276-001	С		06/29/05	07/06/05	MMI	Carbon 14 in Water
216-A-8		WATER	06/07/05	7276-001	GAM		07/08/05	07/14/05	CSS	Gamma Emitters
F05-024-010	F05-024		06/08/05	7276-001	н		06/28/05	07/06/05	MWT	Tritium in Water
				7276-001	I		07/22/05	07/28/05	MWT	Iodine 129 in Water
Method Blank			R506073-03	7276-003	c		06/29/05	07/06/05	MWT	Carbon 14 in Water
		WATER		7276-003	GAM		07/13/05	07/14/05	CSS	Gamma Emitters
	F05-024	4		7276-003	н		06/28/05	07/06/05	MWT	Tritium in Water
Method Blank			-R506073-07	7276-007	ı		07/27/05	07/28/05	MMT	Iodine 129 in Water
		WATER								
_ <u></u>	F05-024		<u></u>							
Lab Control Sa	mple		R506073-02	7276-002	С		06/29/05	07/06/05	TWM	Carbon 14 in Water
		WATER		7276-002	GAM		07/09/05	07/14/05	CSS	Gemma Emitters
	F05-024			7276-002	н		06/28/05	07/06/05	TWM	Tritium in Water
Lab Control Sa	mple		R506073-06	7276-006	I		07/25/05	07/28/05	MWT	Iodine 129 in Water
		WATER								
	F05-024									
Duplicate (R50	6073-01)		R506073-04	7276-004	С		06/29/05	07/06/05	MWI	Carbon 14 in Water
216-A-8		WATER	06/07/05	7276-004	GAM		07/13/05	07/14/05	CSS	Gamma Emitters
	F05-024		06/08/05	7276-004	H.		06/28/05	07/06/05	MWT	Tritium in Water
Duplicate (R50	6073-01)		R506073-08	7276-008	ı		07/25/05	07/28/05	MWT	Todine 129 in Water
216-A-8	•	WATER	05/07/05							
	F05-024		06/08/05							<u> </u>
Spike (R506073	-01)		R506073-05	7276-005	c		06/29/05	07/06/05	MWT	Carbon 14 in Water
216-A-8		WATER	06/07/05	7276-005	н		06/28/05	07/06/05	MWT	Tritium in Water
	F05-024		06/08/05							

WORK SUMMARY

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Lab id EBRINE
Protocol Hanford

Version Ver 1.0

Form DVD-CWS

Version 3.06

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SAMPLE DELIVERY GROUP H3200

SDG	7276
Contact	Melissa C. Mannion

WORK SUMMARY, cont.

Client	Hanford
Contract	No. 630
Case no	SDG H3200

TEST	SAF No	METHOD COUNTS O	REFERENCE	SAMPLE TYPE CLIENT MORE	RE BLANK	LCS	DUP SPIKE	TOTAL
С	F05-024	Carbon 14 in Water	C14_CHEM_LSC	1	1	1	1 1	5
MAĐ	F05-024	Gamma Emitters	Gamma_GS	1	1	1	1	4
H	F05-024	Tritium in Water	906.0_H3_L9C	ı	1	1	1 1	5
I	F05-024	lodine 129 in Water	1129_SEP_LEPS_GS	1	1	1	1	4
TOTALS		· · · · · · · · · · · · · · · · · · ·		4	4	4	4 2	18

WORK SUMMARY
Page 2
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EBERLINE SERVICES / RICHMOND SAMPLE DELIVERY GROUP H3200

R506073-03

Method Blank

METHOD BLANK

SDG <u>7276</u> Contact <u>Melissa C. Mannion</u>	Client/Case no Contract	 SDG_H3200
Lab sample id <u>R506073-03</u> Dept sample id <u>7276-003</u>	Client sample id Material/Matrix SAF No	 WATER

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	Test
Tritium	10028-17-8	394	1000	1700	400	ប	Ħ
Carbon 14	14762-75-5	10.6	24	39	200	ប	C
Potassium 40	13966-00-2	Ū		230		U	GAM
Cobalt 60	10198-40-0	υ		11	25	U .	GAM
Cesium 137	10045-97-3	U		9.9	15	Ū	GAM
Radium 226	13982-63-3	U		19		Ū	GAM
Radium 228	15262-20-1	U		54		ט	GAM
Europium 152	14683-23-9	σ		26	50	U	GAM
Europium 154	15585-10-1	U		30	50	ט	GAM
Europium 155	14391-16-3	Ŭ		30	50	U	GAM
Thorium 228	14274-82-9	U		14		U	GAM
Thorium 232	TH-232	U		54		U	GAM
Uranium 235	15117-96-1	U	•	40		U	GAM
Uranium 238	U-238	U		1300		U	GAM
Americium 241	14596-10-2	ប		65		U	GAM

216-A-8 Crib Charac.Brhl.-QC Samples

QC-BLANK #53232

METHOD BLANKS
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Form DVD-DS
Version 3.06
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EBERLINE SERVICES/RICHMOND SAMPLE DELIVERY GROUP H3200

R506073-07

METHOD BLANK

Method Blank

SDG 72 Contact Me	276 elissa C. Mannion	Client/Case no Contract	SDG_H3200
Lab sample id RS Dept sample id 72		Client sample id Material/Matrix SAF No	WATER

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pci/L	RDL pCi/L	QUALI- FIERS	TEST
Iodine 129	15046-84-1	0.225	1.4	3.2	5.0	υ	I

216-A-8 Crib Charac.Brhl.-QC Samples

QC-BLANK #53700

METHOD BLANKS
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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
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SAMPLE DELIVERY GROUP H3200

R506073-02

LAB CONTROL SAMPLE

Lab Control Sample

SDG <u>7276</u> Contact <u>Melissa C. Mannion</u>	Client/Case no Hanford SDG H3200 Contract No. 630
Lab sample id <u>R506073-02</u> Dept sample id <u>7276-002</u>	Client sample id Lab Control Sample Material/Matrix WATER
	SAF NO <u>F05-024</u>

ANALYTE	RESULT pCi/L	26 ERR	MDA pci/L	RDL pCi/L	QUALI- FIERS	TEST	ADDED pC1/L	2σ KRR pCi/L	REC	3 o LMTS (TOTAL)	PROTOCOI LIMITS
Tritium	24500	1600	1700	400		н	25400	1000	96	82-118	80-120
Carbon 14	9510	110	39	200		С	9570	380	99	94-116	80-120
Cobalt 60	517	48	13	25		MAĐ	504	20	103	72-128	80-120
Cesium 137	468	28	23	15		GAM	530	21	88	78-122	80-120

216-A-8 Crib Charac.Brhl.-QC Samples

QC-LCS #53231

LAB CONTROL SAMPLES
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Lab id EBRLNE
Protocol Hanford
Varsion Ver 1.0
Form DVD-LCS
Version 3.06
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SAMPLE DELIVERY GROUP H3200

R506073-06

LAB CONTROL SAMPLE

Lab Control Sample

SDG 7276 Contact Melissa C. Mannion	Client/Case no <u>Hanford</u> <u>SDG H3200</u> Contract <u>No. 630</u>
Lab sample id <u>R506073-06</u> Dept sample id <u>7276-005</u>	Client sample id <u>Lab Control Sample</u> Material/Matrix WATER SAF No F05-024

ANALYTE	RESULT pCi/L	20 ERR (COUNT)	MDA pci/L	RDL pCi/L	QUALI- FIERS	TEST	ADDED pCi/L	2σ KRR pCi/L	REC	3 GLMTS	PROTOCOL LIMITS
Todine 129	423	9.8	20	5.0		I	454	19	91	90-110	80-120

216-A-8 Crib Charac.Brhl.-QC Samples

QC-LCS	\$53699			

LAB CONTROL SAMPLES

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SUMMARY DATA SECTION

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SAMPLE DELIVERY GROUP H3200

R506073-04

DUPLICATE

BLD7F2

	7276 Melissa C. Mannion			Client/Case no Contract		SDG H3200
	DUPLICATE		ORIGINAL			
Lab sample id	R506073-04	Lab sample	id <u>R506073-01</u>	Client sample id	B1D7F2	
Dept sample id	7276-004	Dept sample	id <u>7276-001</u>	Location/Matrix	216-A-8	WATER
		Receiv	ed 06/08/05	Collected/Volume	06/07/05 07:35 5.0	0 <u>L</u>
				Custody/SAP No	F05-024-010 F05-	024

ANALYTE	DUPLICATE pC1/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- PIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI-	RPD	3σ TOT	PROT
Tritium	30.5	100	170	400	- ס	н	15.1	99	170	Ū	-		
Carbon 14	-12.1	22	38	200	Ü	С	-4.74	23	39	U	-		
Potassium 40	ט		280		0	GAM	ט		150	σ	-		
Cobalt 60	σ		16	25	σ	GAM	σ		16	υ	_		
Cesium 137	ט		12	15	υ	GAM	σ		14	υ	-		
Radium 226	υ		24		Ū	GAM	U		26	U	-		
Radium 228	U		60		τ	GAM	U		60	U	-		
Europium 152	ਧ		31	50	U	GAM	σ		38	U	-		
Europium 154	υ		39	50	σ	MAĐ	Ū		_52	σ	-		
Europium 155	Ū		39	50	Ū	GAM	U		24	σ	-		
Thorium 228	σ		32		Ū	GAM	ס		17	U	-		
Thorium 232	ס		60		υ	GAM	U		60	U	-		
Uranium 235	υ		54		U	GAM	U		43	U	-		
Oranium 238	σ		1600		U	GAM	U		1900	U	-		
Americium 241	ס		80		σ	GAM	Ū		15	U	-		

216-A-8 Crib Charac.Brhl.-QC Samples

QC-DUP#1	53233			

DUPLICATES

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SAMPLE DELIVERY GROUP H3200

R506073-08

DUPLICATE

BLD7F2

SDG 7276 Contact Melissa C. Mannion		Client/Case no Hanford SDG H3200 Contract No. 630
DUPLICATE	ORIGINAL	
Lab sample id <u>R506073-08</u>	Lab sample id <u>R506073-01</u>	Client sample id BlD7F2
Dept sample id 7276-008	Dept sample id <u>7276-001</u>	Location/Matrix 216-A-8 WATER
	Received 06/08/05	Collected/Volume 06/07/05 07:35 5.0 L
		Custody/SAF No F05-024-010 F05-024

ANALYTE	DUPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	Test	ORIGINAL pC1/L	2σ ERR (COUNT)	MDA pCi/L	QUALI- FIERS	RPD	30 PROT
lodine 129	1.94	1.0	4.1	5.0	Ū	1	-0.204	1.7	3.9	Ū	-	

216-A-8 Crib Charac.Brhl.-QC Samples

QC-DUP#1				
OC-DOP#T	53/01			

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Version Ver 1.0
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Version 3.06
Report date 08/01/05

SAMPLE DELIVERY GROUP H3200

R506073-05

MATRIX SPIKE

B1D7F2

SDG 7276	-	Client/Case no Hanford SDG H3200
Contact Meliesa C. Mannion		Contract No. 630
MATRIX SPIKE	CRIGINAL	
Lab sample id <u>R506073-05</u>	Lab sample id <u>R506073-01</u>	Client sample id B1D7F2
Dept sample id 7276-005	Dept sample id 7276-001	Location/Matrix 216-A-8 WATER
	Received 06/08/05	Collected/Volume 06/07/05 07:35 _ 5.0 L
		Custody/SAF No F05-024-010 F05-024

ANALYTE	SPIKE pCi/L	20 ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	ORIGINAL pci/L	2σ ERR (COUNT)		3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	26200	560	230	400	x	H	26500	1100	15.1	99	99		60-140
Carbon 14	4 6200	4 70	91	200	x	C	52700	2100	-4.74	23	88		60-140

216-A-8 Crib Charac.Brhl.-QC Samples

OG MC#1				
QC- MS #1	23234			

MATRIX SPIKES

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EBERLINE SERVICES/RICHMOND SAMPLE DELIVERY GROUP H3200

R506073-01

DATA SHEET

BlD7F2

1	7276 Melissa C. Mannion	Client/Case no Contract		SDG_H3200
Lab sample id Dept sample id Received		Client sample id Location/Matrix Collected/Volume Custody/SAF No	216-A-8 06/07/05 07:35	WATER 5.0 L F05-024

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	T e st
Tritium	10028-17-8	15.1	99	170	400	Ū	H
Carbon 14	14762-75-5	-4.74	23	39	200	U	С
Iodine 129	15046-84-1	-0.204	1.7	3.9	5.0	ט	I
Potassium 40	13966-00-2	σ		150		Ū	GAM
Cobalt 60	10198-40-0	ប		16	25	U	GAM
Cesium 137	10045-97-3	ט		14	15	Ū	GAM
Radium 226	13982-63-3	U		26		บ	GAM
Radium 228	15262-20-1	ប		60		Ü	GAM
Europium 152	14683-23-9	σ		38	50	ឋ	GAM
Europium 154	15585-10-1	Ŭ		52	50	υ	GAM
Europium 155	14391-16-3	ΰ		24	50	ט	GAM
Thorium 228	14274-82-9	ט		17		ט	GAM
Thorium 232	TH-232	σ		60		Ū	GAM
Uranium 235	15117-96-1	บ		43		ט	GAM
Uranium 238	U-238	Ū		1900		U	GAM
Americium 241	14596-10-2	ซ		15		บ	GAM

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Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-DS

Version 3.06

Report date 08/01/05

SAMPLE DELIVERY GROUP H3200

Test	GAM	Mati	'nх	WAT	ER	_
SDG	7276					_
Contact	Melis	ssa C	2. 1	Mann	ion	_

METHOD SUMMARY

GAMMA EMITTERS
GAMMA SCAN

Client	Hanford	
Contract	No. 630	
Contract	SDG H3200	

RESULTS

METHOD PERFORMANCE

CLIERT SAMPLE ID	LAB SAMPLE ID	raw Test		MCA pCi/L	ALTQ L	PREP	DILU- T ION	\$ Alkid			PWHM keV		PREPARED	ANAL- YZED	DETECTOR
Preparation batch 7132-1	162 2 0 pr	ep er	ror 15	.0 % 1	Reference	Lab :	Noteboo	k 7132	pg.	162					
B1D7F2	R506073-01			58	0.500					300		31	06/23/05	07/08	MB,07,00
BLK (QC ID=53232)	R506073-03			52	0.500					571			06/23/05	07/13	MB,05,00
LCS (QC ID=53231)	R506073-02			23	0.500					348			06/23/05	07/09	MB,07,00
Duplicate (R506073-01) (QC ID=53233)	R506073-04		-	79	0.500					337		36	06/23/05	07/13	MB,05,00
Nominal values and limit	s from metho	nd		15	0.500					100	-	180			

PROCEDURES	REFERENCE	GAMMA_GS
	CP-100	Ge(Li) Preparation for Commercial Samples, rev 7

AVERAGES ± 2 SD	MDA 53 ± 46	
FOR 4 SAMPLES	YIELD ±	

METHOD SUMMARIES

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SAMPLE DELIVERY GROUP H3200

Test I Matrix WATER

SDG 7276

Contact Melissa C. Mannion

METHOD SUMMARY

IODINE 129 IN WATER
GRAMMA SPECTROSCOPY

Client	Hanford	
Contract	No. 630	
Contract	SDG H3200	_

RESULTS

CLIENT SAMPLE ID	SAMPLE ID	TEST FIX	PLANCHET	Iodine	129
Preparation batch 7132-	162				
BlD7F2	R506073-01		7276-001	ט	
BLK (QC ID=53700)	R506073-07		7276-007	ס	
LCS (QC ID=53699)	R506073-06		7276-006	οk	
Duplicate (R506073-01)	R506073-08		7276-008	-	σ

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW S	=		PREP	-	* AIKPD			FWHM keV		PREPARED	AMAL-	DETECTOR
											 	- I KILL PARCED		Dilicion
Preparation batch 7132-	1.62 2 <i>0</i> po	rep erro	or 5.0 %	Reference	lab :	No tabool	7132	pg.	162					
B1D7F2	R506073-01		3.9	0.250			80		657		45	07/22/05	07/22	XSPEC-004
BLK (QC ID=53700)	R506073-07		3.2	0.250			83		622			07/22/05	07/27	XSPEC-004
LCS (QC ID=53699)	R506073-06		20	0.250			87		595			07/22/05	07/25	XSPEC-004
Duplicate (R506073-01)	R506073-08		4.1	0.250			90		620		48	07/22/05	07/25	XSPEC-004
(QC ID=53701)														
							·	-			 			
Nominal values and limit	s from metho	od	5.0	0.250			20-105	;	300	100	180			

PROCEDURES	REFERENCE	Il29_SEP_LEP8_GS
	CP-024	Iodine-129, Sample Dissolution, rev 5
	CP-530	Iodine-129 Purification, rev 1

AVERAGES ± 2 SD MDA 7.8 ± 16

FOR 4 SAMPLES YIELD 85 ± 9

METHOD SUMMARIES
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Lab 1d EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 08/01/05

SAMPLE DELIVERY GROUP H3200

Test	C Matrix WATER
SDG	7276
Contact	Melissa C. Mannion

METHOD SUMMARY

CARBON 14 IN WATER

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H3200

RESULTS

Preparation batch 7132-	162			
B1D7F2	R506073-01	7276-001	U	
BLK (QC ID=53232)	R506073-03	7276-003	U	
LCS (QC ID=53231)	R506073-02	7276-002	ok	
Duplicate (R506073-01)	R506073-04	7276-004	-	U
Spike (R506073-01)	R506073-05	7276-005	ok	x

METHOD PERFORMANCE

	LAB	RAW	SUF-	MDA	-	PREF		YIELD			FWHM keV			PREPARED	ANAL-	DETECTOR
CLIENT SAMPLE ID	SAMPLE ID	TEST	FIA]	pC1/L	r	FAC	TION	*	5	14,111	Kev	KEV	HE LEVEL	PREPARED	T STEET	DELECTOR
Preparation batch 7132-:	162 2σ pr	ep er	ror 10.	0 %	Reference	Lab	Noteboo!	k 7132	pg.	162						
B1D7F2	R506073-01		:	39	0.0300			100		75			22	06/29/05	06/29	LSC-005
BLK (QC ID=53232)	R506073-03		:	39	0.0300			100		75				06/29/05	06/29	LSC-005
LCS (QC ID=53231)	R506073-02		:	39	0.0300			100		75				06/29/05	06/29	LSC-005
Duplicate (R506073-01)	R506073-04		;	30	0.0300			100		75			22	06/29/05	06/29	LSC-005
(QC ID=53233)																
Spike (R506073-01)	R506073-05		,	91	0.0200			100		29			22	06/29/05	06/29	LSC-005
(QC ID=53234)																
Nominal values and limit	s from metho	d	2	00	D.0300					50			180			

PROCEDURES	REFERENCE	C14_CHEM_LSC
	CP-241	Carbon-14 in Aqueous Samples, rev 6

AVERAGES ± 2 SD	MDA .	49	±	47
FOR 5 SAMPLES	AlETD .	100	±	0

METHOD SUMMARIES

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 Lab id
 EBRLNE

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 Ver 1.0

 Porm
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SAMPLE DELIVERY GROUP H3200

Test	H Mat	rix	WATER
SDG	7276		
Contact	Melissa	c.	Mannion

METHOD SUMMARY

TRITIUM IN WATER

LIQUID SCINTILLATION COUNTING

Client	Hanford
Contract	No. 630
Contract	SDG H3200

RESULTS

Preparation batch 7132-	162				•	
B1D7F2	R506073-01	7276-001	σ			
BLK (QC ID=53232)	R506073-03	7276-003	ט			
LCS (QC ID=53231)	R506073-02	7276-002	ok			
Duplicate (R506073-01)	R506073-04	7276-004	-	σ		
Spike (R506073-01)	R506073-05	7276-005	ok	x		

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	raw ! Trst 1	SUF- MC PIX pCi/	· · · · -	PREP FAC		£ AIRITD		COUNT mi.o	PWHM keV		PREPARED	ANAL- YZED	DETECTOR
Preparation batch 7132-	162 2 0 pr	ер егго	or 10.0 %	Reference	Lab 1	Noteboo!	k 7132	pg.	162					
B1D7F2	R506073-01	•	170	0.0100			100		120		21	06/27/05	06/28	LSC-004
BLK (QC ID=53232)	R506073-03		1700	0.0100			10		120			06/27/05	06/28	LSC-004
LCS (QC ID=53231)	R506073-02		1700	0.0100			10		120			06/27/05	06/28	LSC-004
Duplicate (R506073~01)	R506073-04		170	0.0100			100		120		21	06/27/05	06/28	LSC-004
(QC ID=53233)														
Spike (R506073-01)	R506073-05		230	0.0350			28		64		21	06/27/05	06/28	LSC-004
(QC ID=53234)														
•											 		_	
Nominal values and limit	ts from metho	kd	400	0.0100					25		180			

PROCEDURES	REFERENCE	906.0_H3_ LBC
	CP-210	Tritium in Water Samples by Distillation, rev 8

AVERAGES ± 2 SD	MDA <u>790</u> ± <u>1700</u>	
FOR 5 SAMPLES	YIELD <u>50</u> ± <u>93</u>	

METHOD SUMMARIES

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Protocol Hanford
Version Ver 1.0
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Version 3.06
Report date 08/01/05

SAMPLE DELIVERY GROUP H3200

SDG	<u> 7276 </u>		
Contact	Melissa	C.	Mannion_

REPORT GUIDE

Client	Hanford
Contract	No. 630
Case no	SDG_H3200

SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

- * LAB SAMPLE ID is the lab's primary identification for a sample.
- * DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.
- * CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.
- * QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.
 - QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.
- * All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

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 Lab id
 EBRLNE

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 Hanford

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 Ver 1.0

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 08/01/05

SAMPLE	DRLIVERY	GROTTP	H3200

SDG <u>7276</u>
Contact <u>Melissa C. Mannion</u>

REPORT GUIDE

Client	Hani	Ford	
Contract	No.	630	
Case no	SDG	H3200	

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

- * The preparation batches are shown in the same order as the Method Summary Reports are printed.
- * Only analyses of planchets relevant to the SDG are included.
- * Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.
- * The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

These qualifiers should be reviewed as follows:

- X Some data has been manually entered or modified. Transcription errors are possible.
- P One or more results are 'preliminary'. The data is not ready for final reporting.
- 2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

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SAMPLE DELIVERY GROUP H3200

SDG 7276
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WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

- * TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.
- * SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.
- * The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.
- * PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.
- * For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.
- * The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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SAMPLE DELIVERY GROUP H3200

SDG 7276
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REPORT GUIDE

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DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

- * TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.
- * The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

- * ERRORS can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.
- * A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.
- * When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity).

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SAMPLE DELIVERY GROUP H3200

SDG	72 <u>76</u>			
Contact	Melissa	c.	Mannion	

GUIDE, cont.

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Contract	No. 630
Case no	SDG_H3200

DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

- J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.
- B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

- L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.
- H Similar to 'L' except the recovery was high.
- P The RESULT is 'preliminary'.
- X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.
- 2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

* An MDA is underlined if it is bigger than its RDL.

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Protocol Hanford
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Version 3.06
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SAMPLE DELIVERY GROUP E3200

SDG	7276		
Contact	Melissa	C.	Mannion

GUIDE, cont.

Client	Hanford
Contract	No. 630
Case no	SDG_H3200

DATA SHEET

- * An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.
- * A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.
- * When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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SAMPLE DELIVERY GROUP H3200

SDG <u>7276</u>
Contact <u>Melissa C. Mannion</u>

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LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.
- * An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- * REC (Recovery) is RESULT divided by ADDED expressed as a percent.
- * The first, computed limits for the recovery reflect:
 - 1. The error of RESULT, including that introduced by rounding the result prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

- 2. The error of ADDED.
- 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- * The second limits are protocol defined upper and lower QC limits for the recovery.
- * The recovery is underlined if it is outside either of these ranges.

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SAMPLE DELIVERY GROUP H3200

SDG 7276
Contact Melissa C. Mannion

REPORT GUIDE

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DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTs divided by their average expressed as a percent.

If both RESULTs are less than their MDAs, no RPD is computed and a '-' is printed.

For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTs prior to printing.

If this limit is labeled TOT, it includes the preparation error in the RESULTs. If labeled CNT, it does not.

This value reported for this limit is at most 999.

- * The second limit for the RPD is the larger of:
 - 1. A fixed percentage specified in the protocol.

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SDG	7276		
Contact	Melissa	C.	Mannion

GUIDE, cont.

Client	Hanford	
Contract	No. 630	
Case no	SDG_H3200	

DUPLICATE

- A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.
- * The RPD is underlined if it is greater than either limit.
- * If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

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SAMPLE DELIVERY GROUP H3200

SDG <u>7276</u>
Contact <u>Melissa C. Mannion</u>

REPORT GUIDE

Client	Hanford		
Contract	No.	630	
Case no	SDG	H3200	

MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- * REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.
- * The first, computed limits for the recovery reflect:
 - The errors of the two RESULTs, including those introduced by rounding them prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

- 2. The error of ADDED.
- 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- * The second limits are protocol defined upper and lower QC limits

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SAMPLE DELIVERY GROUP #3200

SDG <u>7276</u> Contact <u>Melissa C. Mannion</u>

GUIDE, cont.

Client	Hanford	
Contract	No. 630	
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MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

* The recovery is underlined (out of spec) if it is outside either of these ranges.

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SAMPLE DELIVERY GROUP H3200

SDG	7276			
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REPORT GUIDE

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Case no	SDG_H3200	

METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

* Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

The J and X flags are as on the data sheet.

- * Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.
- * Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-RG</u>
Version <u>3.06</u>
Report date <u>08/01/05</u>

SAMPLE DELIVERY GROUP H3200

SDG 7276
Contact Melissa C. Mannion

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Case no	SDG	H3200	

METHOD SUMMARY

means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

- * Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.
- * If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

MDAs are underlined if greater than the printed RDL.

- * Aliquots are underlined if less than the nominal value specified for the method.
- * Prepareation factors are underlined if greater than the nominal value specified for the method.
- * Dilution factors are underlined if greater than the nominal value specified for the method.
- * Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.
- * Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.
- * Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

REPORT GUIDES
Page 13
SUMMARY DATA SECTION
Page 32

Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-RG</u>

Version <u>3.06</u>

Report date <u>08/01/05</u>

SAMPLE DELIVERY GROUP H3200

SDG	7276			
Contact	Melissa	C.	Mannion	

GUIDE, cont.

Client	Hanford
Contract	No. 630
Case no	SDG_H3200

METHOD SUMMARY

- * Count times are underlined if less than the nominal value specified for the method.
- * Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.
- * Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.
- * Days Held are underlined if greater than the holding time specified in the protocol.
- * Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1÷3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

REPORT GUIDES
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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/01/05

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H3200

SDG 7276
Contact Melissa C. Mannion

GUIDE, cont.

Client	Hanford
Contract	No. 630
Case no	SDG_H3200

METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

REPORT GUIDES
Page 15
SUMMARY DATA SECTION
Page 34

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/01/05

!	Fluc	or Hanford Inc.	!	CHAIN	OF CUSTOD	Y/SAMPLE A	NALYSIS R	EQUEST		F05-024-010	PAGE 1 OF 1
COLLECTOR			COMPANY CON	TACT		LEPHONE NO	•	l l	COORDINATOR	PRICE CODE 7N	DATA
Pope/Pfister/\		lokler	TRENT, SJ			73-5869		TRENT, S	J		TURNAROUND
SAMPLING L 216-A-8	OCATION		PROJECT DESIG 216-A-8 Crib Cha	NATION	H3200	(727)	6)	SAF NO. F05-024		AIR QUALITY	45 Days /
ICE CHEST N	Q C	- 1	FIELD LOGBOOI	,	rendie - QC 3a	COA		METHOD	OF SHIPMENT	<u> </u>	
!	SHULL	5-115				119152ES10)	1	EXPRESS	·	
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MATRIX*	POSSIB	LE SAMPLE HAZARDS/ REMARKS	PRESER	VATION	None	HNO3 to pH <2	None	None			
DL=Drum Liquids DS=Drum Solids	Samples d	lid not originate in	TYPE OF C	ONTAINER	G/P	G/P	G/P	p			
t_=Uquid D=Oil S=Soil	radiologic activity as sample/sa	al controlled area. No total sociated with mples.	No. of cor	TAINER(S)	i	1	4	1			
SE=Sediment T=Tissue V=Vegitation W=Water	V2		VOL	UME	125mL	100 0 mL	1000mL	125mL			
WI=Wipe	SPECIA	L HANDLING AND/OR STORAGE	SAMPLE /	Analysis	Carbon-14;	Samme Spec Radium (Radium 226, Radium 226)	fodine-129;	Tritium - H3;			
SAMP	LE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIM	 E						
B1D7F2	, 	WATER	6.7.05	6735	*	~	1	*			
			6				 	–			
					_ ~- 		1	 			
							1				
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DISPOSIT			<u></u>							_,	



RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

7275

Client	-	14NF	orD	City	4044ND 15-024-0	State	,_wA	
Date/Ti	me receiv	md 06 08 1	of 9:3% coc	No	5-024-0	10		
Contail	ner I.D. No	SAWS-	. () Request	ted TAT (Days)	45 P.O. Rece	ived Yes	[] No []	
				INSPEC				
1.	Custody	seals on si	hipping containe	r intact?		Yes [🧡]	No[] N/A	· E J
2.	Custody	iz no sisez	hipping containe	r dated & signe	4 ?	Yes [+]	No[] N/A	
3.	Custody	seals on sa	ample containen	s intact?		Yes [🔨]	No[] N/A	\[]
4.	Custody	seals on sa	ample container:	s dated & signe	d?	Yes [🗲]	No[] N/A	\ [] \
5.		material is:				Wet []	Dry [X]	
6.	Number	of samples	in shipping con	tainer.	Sample Matrix _	W		
7.	Number	of containe	ers per sample: .		(Or see CoC)		
8.	Samples	are in con	ect container		Yes [X] No			
9.	•	•	with samples?		-7			
10.					Radiabets [] App		,	1
11.	Samples	are: in	good condition	[X] Leakin	g [] Broken Co	ntainer []	Missing [].
12.	Samples	are: Pres	served [X] No	t preserved 📉] pH <u>1/7</u> Preser	vative		
13.		any anom		,	•			
								
	 -							****
14.	Was P.N	vi. notified	of any anomalie		[] No[]	Date		<u></u>
15.	inspecte	ed by	 	Date: _	68 07 Time: _	-		
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	heter Ser.	INO.			Calibration date_			



Mr. Steve Trent Fluor Hanford Inc. 825 Jadwin Ave. Richland, WA 99352

Subject: Contract No. 630 Analytical Data Package

Dear Mr. Trent:



Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

LvLl Batch #	0506L7 00
SDG#	H3200
SAF#	F05-024
Date Received	6-8-05
# Samples	1
Matrix	Water
Volatiles	
Semivolatiles	(1)
Pest/PCB	No 1784 1997 1
DRO/GRO/KRO	
Herbicides	
GC Alcohol	
Metals	
Inorganics	X
Metals	X

The electronic data deliverable (EDD) will be emailed shortly. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,

Dionville Laboratory Incorporated

Orlette S. Johnson Project Manager

r:\group\pm\orlette\tnu-hanford\data\fc_ltrs.doc

Lionville Laboratory, Inc. INORGANIC ANALYTICAL DATA PACKAGE FOR TNUHANFORD F05-024 H3200

DATE RECEIVED: 06/08/05 LVL LOT # :0506L700 CLIENT ID /ANALYSIS LVL # MTX PREP # COLLECTION EXTR/PREP ANALYSIS B1D7F2 W 05LN3033 06/07/05 06/20/05 06/21/05 NITRATE NITRITE 001 W 05LN3033 06/07/05 06/20/05 001 REP 06/21/05 NITRATE NITRITE W 05LN3033 06/07/05 06/20/05 06/21/05 NITRATE NITRITE 001 MS 001 W 05LAM019 06/07/05 06/17/05 06/17/05 AMMONIA 001 REP W 05LAM019 06/07/05 06/17/05 06/17/05 AMMONIA 06/17/05 001 MS W 05LAM019 06/07/05 06/17/05 AMMONIA W 05LTC017 06/07/05 06/14/05 06/14/05 TOTAL ORGANIC CARBON 001 06/14/05 06/14/05 TOTAL ORGANIC CARBON 001 REP W 05LTC017 06/07/05 W 05LTC017 06/07/05 06/14/05 TOTAL ORGANIC CARBON 001 MS 06/14/05 LAB QC: 06/20/05 06/21/05 NITRATE NITRITE MB1 W 05LN3033 N/A06/20/05 06/21/05 W 05LN3033 N/AMB1 BS NITRATE NITRITE W 05LAM019 N/A 06/17/05 06/17/05 MB1 AMMONIA AMMONIA MB1 BS W 05LAM019 N/A 06/17/05 06/17/05 MB1 BSD W 05LAM019 N/A06/17/05 06/17/05 AMMONIA

W 05LTC017

W 05LTC017

TOTAL ORGANIC CARBON

TOTAL ORGANIC CARBON MB1 BS

MB1



N/A

N/A

06/14/05

06/14/05

06/14/05

06/14/05



Analytical Report

Client: TNU-HANFORD F05-024 H3200

LVL#: 0506L700

W.O.#: 11343-606-001-9999-00 Date Received: 06-08-05

INORGANIC NARRATIVE

1. This narrative covers the analyses of 1 water sample.

2. The sample was prepared and analyzed in accordance with the methods indicated on the attached glossary. Analysis was not performed to calculate Total Inorganic Carbon (TIC) as an unpreserved sample portion was unavailable in order to determine the Total Carbon concentration required for the calculation.

LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete list of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

- 3. Sample holding times as required by the method and/or contract were met.
- 4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy with the exception of Total Organic Carbon (TOC), TIC and Oil and Grease as noted on the Sample Receipt Checklist.
- 5. The method blanks were within the method criteria.
- 6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS for Ammonia was within the 20% Relative Percent Difference (RPD) control limit.
- 7. The matrix spike recoveries for Nitrate Nitrite, Ammonia and TOC were within the 75-125% control limits.
- 8. The replicate analyses for Nitrate Nitrite, Ammonia and TOC were within the 20% RPD control limit.
- 9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels Laboratory Manager

7/13/08 Date

Lionville Laboratory Incorporated

njp\i06- 700

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 14 pages.

Figure 1900 Latory :	sample Discrepancy Report	SDR# OSUC
Initiator. >eo	Batch: 0500L700	Parameter:
Date: 86-14-05	Samples: OO	- Maria
Client: TNU	Method: SW846MCAWW/CLP/	Prep Batch:
Ollette Hoo	OTTO-CARCOTTOTOT	riep baici i.
1. Reason for SDR		
a. COC Discrepancy Tech Profil		ampler Error on C-O-C
b. General Discrepancy		
	<u> </u>	mple Pulled Label ID's Illegible
	<u> </u>	ion Wrong Received Past Hold
Note Verified by [Log-In] or [Prep Group] (circ		
c. Problem (Include all relevant specifi		
C. Pibblem (made an ion	e i o o o o o o o o o o o o o o o o o o	
	1 T4-01	1
1 10 result	based on Total (arpon from
unareserved	bottle less the	toc result from
2. Known of Probable Causes(s)	battle less the	X.S.
Sample designates (pH < 2 and sample jo	for TIC and isis	was one on med
COHIZA and sample is	ir's lid labeled Hely	All Others Sources
were also preserved	4	Sill as were gravibous
3. Discussion and Proposed Action	Other Description:	es in OT in the state of
Re-log Entire Batch	\mathcal{T}_{α}	esult unoptainable
Following Samples:	Klea	ue rancel.
Re-leach		pore to narrato
Re-extract Re-digest	11 1	pore no madriag
Revise EDD		120
Change Test Code to	$\langle \langle \langle \langle \langle \rangle \rangle \rangle \rangle \rangle \langle \langle \langle \langle \rangle \rangle \rangle \rangle \langle \langle \langle \rangle \rangle \rangle \langle \langle \langle \rangle \rangle \rangle$	6-14-05
4 - /	The state of the s	
4. Project Manager Instructions, signature Concur with Proposed Action	revolue:	TIC=TC-TOC
Disagree with Proposed Action; See	Instruction /	110-10-10
Include in Case Narrative	•	·
Client Contacted: Date/Person	•	
Add		
Cancel		
5. Final Actionsignature/date:		tion:
Verified re-[log][leach][extract][digest]	4.5	
Included in Case Narrative 1519 7-13. Hard Copy COC Revised FINA	I ITIC cancelled in	LIMS .
7 Electronic COC Revised	COC revised.	
EDD Corrections Completed		:
When Final Action has been recorded, f	orward original to QA Specialist for	distribution and filing.
Route Distribution of Completed SDR		n of Completed SDR
X Initiator X Lab General Manager: M. Tayk	— Metals:	
X Project Mary Store Johnson/Has	ilett GC/LC	iic: Perrone Kiger
X Technical Mor. Wesson/Daniels		chiek/Layman
Z QA (file): ABBET FUNCTION Data Management Feldman	Log-in:	Melnit Renny
Sample Prep; Beegle/Kiger	Admin; Other.	Soos A way-
— — — — — — — — — — — — — — — — — — —		

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR WATER SAMPLE ANALYSIS

	EPA /600	SW846	<u>OTHER</u>
Acidity	305.1		
Alkalinity Bicarbonate Carbonate	310.1		
BOD	405.1		5210B (b)
Ion Chromatography:			
Bromide Chloride Fluoride	300.0	9056	
Nitrate Nitrite Phosphate	300.0	9056	
Sulfate Formate Acetate Oxalate	300.0	9056	
Chloride	325.2	9251	
Chorine, Residual	330.5 (mod)		
Cyanide, Amenable to Chlorination	335.2	9010B	
Cyanide, Total	335.2	9010B 9014	ILMO4.0 (e)
Cyanide, Weak Acid Dissociable	•		412 (a) 4500CN-1 (b)
COD	410.4(mod)		5220C (b)
Color	110.2		
Corrosivity by Coupon		1110(mod)	
Chromium VI	•	7196A	3500Ст-D (b)
Fluoride	340.2		4500-FC
Hardness, Calcium	<u> </u>		_
Hardness, Total	130.2		
Iodide			ASTM D19P202 (1)
Surfactant	425.1		
Nitrate-NitriteNitrateNitrite	7 ,353.2		
Ammonia	350.3		
TotalKjeldahl Organic Nitrogen	351.3		
Total Organic Inorganic Carbon	√ 415.1	9060	
Oil & Grease	413.1	9070	
pH pH; paper	150.1	9040B 9041A	•
Petroleum Hydrocarbons, Total Recoverable	418.1		
Phenol		0.2 9065 90	066
OrthoTotal Phosphate	365.2		4500-P B C
Salinity			210A (a) 2520 (b)
Settleable Solids	160.5	000000000000000000000000000000000000000	
Sulfide	376.1		34 (acid soluble)
ReactiveCyanideSulfide		Section 7.3 (9	00149030B)
Silica	370.1		
Sulfite	377.1	. 0020	
Sulfate	375.4	9038	
Specific Conductance	120.1	9050A	D5055 00 012T (-)
Specific Gravity	• -	16	$\underline{\hspace{0.2cm}}$ D5057-90 $\underline{\hspace{0.2cm}}$ 213E (a)
Synthetic Precipitation Leach		12	
TotalDissolvedSuspendedSolids	16012 _	3 9020B	
Total Organic Halides	450.1	3020D	
Turbidity	180.1		
Volatile Solids: Total _DissolvedSuspended	160.4		
	100.7	Method:	
Other:		MEHOU.	

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

- U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.
- * = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.

MS = Matrix Spike.

MSD = Matrix Spike Duplicate.

REP = Sample Replicate

LC = Laboratory Control Sample.

NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

- 1. ASTM Standard Methods.
- USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).
- 3. Test Methods for Evaluating Solid Waste (USEPA SW-846).
- a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).
- b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).
- c. <u>Method of Soil Analysis</u>, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).
- d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).
- e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.
- f. Code of Federal Regulations.

INORGANICS DATA SUMMARY REPORT 06/24/05

CLIENT: TNUHANFORD F05-024 H3200 WORK ORDER: 11343-606-001-9999-00 LVL LOT #: 0506L700

					REPORTING	DITOLION
SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	LIMIT	FACTOR
				0 3 2 F 8 5	- 李章 B B B B B B B B B B B B B B B B B B	****
-001	B1D7F2	Nitrate Nitrite	0.20 u	MG/L	0.20	10.0
		Ammonia, as N	0.10 u	MG/L	0.10	1.0
		Total Organic Carbon	0.50 u	MG/L	0.50	1.0

INORGANICS METHOD BLANK DATA SUMMARY PAGE 06/24/05

CLIENT: TNUHANFORD F05-024 H3200

LVL LOT #: 0506L700

WORK ORDER: 11343-606-001-9999-00

***************************************					REPORTING	DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	LIMIT	FACTOR
=======		2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0de======			
BLANK10	05LN3033-MB1	Nitrate Nitrite	0.020u	MG/L	0.020	1.0
BLANK10	05LAM019-MB1	Ammonia, as N	0.10 u	MG/L	0.10	1.0
BLANK10	05LTC017-MB1	Total Organic Carbon	0.50 u	MG/L	0.50	1.0

INORGANICS ACCURACY REPORT 06/24/05

CLIENT: TNUHANFORD F05-024 H3200 WORK ORDER: 11343-606-001-9999-00 LVL LOT #: 0506L700

			SPIKED	INITIAL	SPIKED		DILUTION
SAMPLE	SITE ID	ANALYTE	Sample	RESULT	AMOUNT	*RECOV	FACTOR (SPK)
		二马可罗伯伯拉尔马尔兰三马奇名名马罗邦产士二	## ## ###			电音管量产品等	亚巴马马克西西伊 哈巴
-001	B1D7F2	Nitrate Nitrite	4.9	0.20u	5.0	98.0	10.0
		Ammonia, as N	2.0	0.10u	2.0	99.0	1.0
		Total Organic Carbon	5.4	ه المهيسات	5.0	111.9	1.0
BLANK10	05LN3033-MB1	Nitrate Nitrite	0.50	0.0211	0.5	100.4	1.0
BLANK10	051-AM019-MB1	Ammonia, as N	2.0	0.10u	2.0	97.5	1.0
		Ammonia, as N MSD	2.0	0.10u	2.0	98.0	1.0
BLANK10	05LTC017-MB1	Total Organic Carbon	5.1	0.50u	5.0	101.1	1.0

INORGANICS DUPLICATE SPIKE REPORT 06/24/05

CLIENT: TNUHANFORD F05-024 H3200

LVL LOT #: 0506L700

WORK ORDER: 11343-606-001-9999-00

			SPIKE#1	SPIKE#	2
SAMPLE	SITE ID	ANALYTE	*RECOV	*RECOV	*DIFF

BLANK10	05LAM019-MB1	Ammonia, as N	97.5	98.0	0.51

INORGANICS PRECISION REPORT 06/24/05

CLIENT: TNUHANFORD F05~024 H3200

LVL LOT #: 0506L700

WORK ORDER: 11343-606-001-9999-00

			INITIAL			DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	REPLICATE	RPD	FACTOR (REP)
	***********		****	========	=====	===20000000
-001REP	B1D7F2	Nitrate Nitrite	0.20u	0.204	NC	10.0
		Ammonia, as N	0.101	0.104	NC	1.0
		Total Organic Carbon	0.504	0.501	NC	1.0

Lionville Labo	ratory	/ Use Only	Cust	ody T	rans	<i>KE</i> fer	รับรับ Rec	aと ord/	Lab	W	ork	R	equ	ıes	it F	age_	10	f 1			1	d	vL	_ -
0500	L7	∞						LETE O												SF	SC_			
Cilent	-			X BY	本 打震	1	Refrige	rator #		7		1	1		1	<u> </u>		-	AB	}	C I /	\mathcal{D}	E	1
Est. Final Proj	Samı	oling Date	建设是实 的	ALCO IN	*		#/Type	Container	Uguld					- ,	44.	3,2	- 1-1-1 -#0	n	29		19	ไร	lp	1p
Project #			0-001-99	49-50	in pakil Malaka	e este -a			8olid Liquid			- 2	 			-			11		120	130	6 0	•==
Project Contac Lionville Labo	t/Pho atory	ne # Project Mana		0110	ريملر	, dr	Volume	_	Solid			1			٠		-					'	,	530
oc spice	D	1 57d	TAT	o Day	6 Fig. 15 Se		Preserv	alives	, S.A	16	OBG	ANIC		2 4	2.0		INC	BG	HŽS	1	4 ₂ 5,	1/2.5cg	/E,	H5C*
Date Rec'd(<u>o,</u> 8	05	Date Due	2/8/0	5		ANALYS			ş	A A	Pest/	Į.			e de la Agri Patrili	Metal	3	+ 8		<u>ئا</u>	کا	143	20N 20\
MATRIX											·	·	1	1	Llon	ville La	borato	ry Use	Only	1	1		_ 	
S - Soll SE Sedment SO Sold	Lab ID		Client ID/Descr	iption	CI	lairix QC hosen (/)	Metrix	Date Collected	Time Collected		 								<u>'</u>	, i	7.7.	à	TNH3N	MENZN
W Water Of	<u>-</u>	.0:-			MS	MSD			[<u> </u>				7				31	Н	1	7
A • Air DE • Drum Solids	∞	BID	752	The state of the s	V		W	6705	Obje				<u> </u>	 					X		K	X	X	X
DL - Drum Liquida					# · · · · · · · · · · · · · · · · · · ·			***		-		J.,				-,-			-		_1-			
L - EP/TCLP Leachate		3, 1 25, 1 F				r.y			4	-	in the		-	7			.,	,-	-					
Wie Wipe X - Other F - Fish	<u> </u>	374					ar in		ulip Jr.		e de la co							1,						
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Lionville Lab			Custo	ody Tra									equ	est	Page_		of <u> </u>		SR	C T		VĒ	77
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Client THU Hantord FOS-084								Liquid			_			_	-	 	aq		19	19	lp	TF	
Est. Final Proj. Sampling Date Project #						#/Type	Container	Solld							<u> </u>		<u>'</u>		'				
Project Contact/Phone #						Volume		Liquid					ļ				11	الا	30	PO	560	50	
Lionville Labo	ratory F	roject Manag			741	-00°	Presery	ratives	Solid	<u> </u>	 	-			-	-	<u> </u>	HZSo	4	25	1 ₂ S03	142.	125
ac Spec	Də	37a	TAT	o Dryo		 -	-			ORGANIC					- -	INORG		7	*	*	. 1	7	7
Date Rec'd	<u> </u>	05	Date Due	7/8/05			REQUE		->	Š	8N8	Pest/	Herb		ļ	Metal	8	1 + 8 100		F	Ja J	NES	70N
MATRIX					T								1	ī	Jonville L	aborato	ry Use	Only		1			
S - Sall SE - Sediment SO - Solid SL - Studge	Lab ID	1	Client ID/Descri	ption	Ch	elrix OC Osen (/)	Matrix	Datu Collected	Time Collected										\	~	10 CT	LNH3N	THENT
W - Water O - Oil		0.55	· 6		7	MSD		<u> </u>		<u> </u>			+		-	├	ļ			<u>۲</u>	``	H	7
A - Alv DS - Drum	∞	BID	7 Feb		V	V	w)	6.705	OBC		<u> </u>						-	X		X	X	X	X.
Solids OL - Drum					-}	-		├							_}_	 	-		 -	+			
Liquids L - EP/TCLP Leachate					+	\vdash		 								╁┈╴	 					-	
Wi - Wipe X - Other					1	 		 								 		-					
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Special Instru	tions:						7	1. St 2 3 4 5	ec'd		<u> </u>	tse.		<i>2</i> /1	Lg	-((1+	Gre	cal)*C	Ol, —
Reifingulaher by	,	Received by	Date	Time		ulshed y		6 Received by)ate	Tin	ne		Unquishe by			elved by		Date	Т	me		
Nox.	XX		70 <u>80</u> 3) (6-808	0915										WAS	POSITI STE"	:	0 R(RIG	HTTE	N			

Fluor Hanford Inc.			į	CHAIN	OF CUSTOD	Y/SAMPLE A	NALYSIS RE	QUEST		F05-024	-011	PAGE 1 OF 1(1")		
COLLECTOR			COMPANY COM	ITACT		TELEPHONE NO.			COORDINATOR	PRICE C	ODE 7N	DATA		
Pope/Pfister/Wels/Tyra/Mokler			TRENT, SJ		3	373-5869			TRENT, SI		ODE /M		DMUORA	
SAMPLING 216-A-8	LOCATION	N		PROJECT DESIGNATION						AIR QUA	ILITY []		Days /	
ICE CHEST-NO/			- ·	216-A-8 Crib Charactertzation Borehole - QC Samples FIELD LOGBOOK NO. COA						<u> </u>	*			
(AKV-04-017						119152E510			METHOD OF SHIPMENT FEDERAL EXPRESS					
SHIPPED TO			OFFSITE PROP	ERJY NO	1	77	~	BILLOFL	ADING/AIR BIJ	H-NO-7 . 1	777		·	
Lionville Laboratory Incorporated				24/11		4++			24 F	PPR 19	$\lambda t + t$			
MATRIX* A=Air DL=Drum	j	IBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION		HCI to pH <2/Cool #C	HCl or H2SO4 to pH <2/Cool 4C	HCI or H2504 to pH <2/Cook 4C G		H2SO4 to pH <2/Cool 4C			· T		
Liquids DS=Drum Solids	radiolog	did not originate in ical controlled area. No total associated with	TYPE OF C	TYPE OF CONTAINER				G/P	G/P					
L=Uquid O=Oil S=Solf	sample/s		No. of co	NO. OF CONTAINER(S)		1	1		1		·		 	
SE=Sediment T≈Tissue	SE=Sediment Tissue- v=Vegitation		VOL	VOLUME SAMPLE ANALYSIS		120 125ml 1 pr 6-7-05 TIC-415.1H;	124 125ml 1-7-1 100-415.1;	300 MIL 300 MIL 407-10 MOZ/MO3 - 353.2;	300mL-				1	
W=Water									A 34-7-45	5				
X=Other			SAMPLE						Anymonia - 350.3;				<u>-</u> .—.—.	
! [
SAMP	LE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			[_		•				
	SAMPLE NO. MATRIX* 31D7F2 WATER									75.5				
				0720	K		<u> </u>	^	<u> </u>					
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			-		ļ 									
CHAIN OF PO	CHAIN OF POSSESSION			NAMES		<u></u>	Spe	CIAL INSTR	HICTIONS					
PEL I MOLITISMO				RECEIVED BY/STORED IN DAYE/TIME										
JSB12/	180	OVED FROM DATE/TIME	1 7	REF. #NA	0/07		30 _							
RELINGUISHE	LBY MEN	THE DATE TIME	- AF TY EVER	stoleto in	Kall.	// -SATELT								
British Sep	110,004,049,404,02 1049			Marilin's	MMM	(U(7/02)	<u> </u>						ĺ	
RELINGUISHED BY REMOVED FROM DATE /TIME			45 721	Ϋ́Х		\ DATE/TIME								
			RECEIVED BY	N ~	DATE/TIME				•					
RELINQUISHE	D BY/REMO	VED FROM DATE/TIME	RECEIVED BY/	STORED IN	<u>, </u>	DATE/TI	0915 ME							
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SECTION	_l .													
	FINAL SAMPLE DISPOSAL METHOD DISPOSITION						DISP	OSED BY			ſ	ATE/TIME		
A-GOOT-GLACORA														

Lionville Laboratory Incorporated SAMPLE RECEIPT CHECKLIST (SRC)

CLIE	MI: TNU Hanton	Date	: 6.8.05		
	*Order / Project# / SOW# / Release #: FO5-034				
LvLI	Batch #: 050LL 700	Sam	ple Custodia	an:D - (()	miss
	NOTE: EXP	LAIN ALL DISC		17	
1.	Samples Hand Delivered or Shipped	Carrier	D\$	Airbill#	19109494989
2.	Custody seals on coolers or shipping container intact, signed and dated?	Ø Yes	□ No	□ No Seals	Comments
3.	Outside of coolers or shipping containers are free from damage?	Dies	□ No		
4.	All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?	Yes	□ No		
5.	Samples received cooled or ambient?	Temp 3-(°C	Cooler# (-	5RP-04.017
6.	Custody seals on sample containers intact, signed and dated?	≠ Yes	□ No	□ No Seais	
7.	coc signed and dated?	Yes	□ No	Rec	id broken.
8.	Sample containers are intact?	□ Yes	Ø№ #00	N A+B	
9.	All samples on coc received? All samples received on coc?	D ^A Yes	□ No (0,14	cid broken. Grease)
10.	All sample label information matches coc?	Yes	, 🗆 Ng		0
11.	Samples properly preserved?	Yes my D	DINO NO	UNPRES	ERVED FOR TIC
12.	Samples received within hold times? Short holds taken to wet lab?	Yes 7-13	□ No	. 0	ERVED For TIC analysis adopace
13.	VOA, TOC, TOX free of headspace?	D Yes	No No	□ N/A	adspace
14.	QC stickers placed on bottles designated by client?	D/Yes	□ No	□ N/A	001C+D (Tic +TOC)
15	Shipment meets LvLl Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy)	□ Yes	Dee +	8+#13	3, #1
16	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	T Yes	□ No	□ No Discrepancies	- -

